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A Fishery, a Sanctuary, a Sink, and a Disaster: The Often Hapless Management of California's Salton Sea

*William M. McLaren**

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Abstract

Over a century ago, a series of questionable management decisions and water-diversion engineering mistakes produced an “unnatural” waterbody called the Salton Sea in Southern California. Since then, the Salton Sea has served as a recreational destination with fluctuating popularity, a sanctuary for migratory birds, a sink for agricultural runoff and urban wastewater, and one of the most productive tilapia and corvina fisheries in the United States. However, the Salton Sea’s resources and associated uses have steadily deteriorated since its formation.

The contrast between the ethics that drove resource management decisions at the time of the Salton Sea’s formation to those employed in modern times is stark. Those differences, in addition to the evolution of management practices and legislation controlling the fate of the Salton Sea, create a fascinating case study of the complexities associated with managing a “manmade” resource with both intrinsic and extractive values. To explore these concepts, this article will analyze the Salton Sea’s unique origin story and historical management. It will then explore some of the value conflicts regarding the Salton Sea’s many resources. Next, it will consider the ethical and management approaches through which legislative and restoration efforts have been carried out thus far. Finally, it will outline creative solutions to fund efforts to cure the Salton Sea’s continuing problems.

This analysis further serves to illustrate the fact that a predominantly anthropocentric resource management approach brought about the Salton Sea as it is today, at least to the extent humans have determined its fate. Beyond that lesson, though, an important question arises: would a more balanced management approach have resulted in a better outcome for all stakeholders? The answer to this question is almost inarguably yes. If all of the Salton Sea’s features had been accounted for when the important decisions were made, its future viability would be less questionable and its current impairments less severe. Thus, to inform proper management practices for the future, lessons first must be drawn from the mistakes of the past.

I. Introduction

Even a cursory analysis of historical and modern resource management decisions pertaining to California’s Salton Sea (“Sea”) paints a complex picture of conflicting viewpoints, significant ecological and economic degradation, and bleak prospects for the future of the Sea’s many resources.¹ The Sea, in its current state, is the quintessential multipurpose

1. See generally California Department of Water Resources, *Salton Sea Spotlight: Salton Sea Species Conservation Habitat Project*, <http://www.water.ca.gov/saltonsea/#> (last visited Mar. 26, 2014) (explaining the origins of the sea, the balance between

resource—it acts as a sink for irrigation runoff from the robust agricultural industry occupying California’s Imperial Valley, a disposal area for urban wastewater from surrounding communities, a faltering destination for outdoor recreationists, and a mecca for bird-watching.²

A glimpse into the past often promotes an understanding of modern realities. Thus, the first part of this article will explore the Sea’s origins and management throughout the first half of the twentieth century. Interestingly, the Sea has gone through extensive transformation in a relatively brief period. What began as a catastrophe caused by a multi-month flood became, over the span of several decades, a legendary tourism destination. The Sea’s storied background, however fascinating, is several scales of magnitude less intriguing than its current condition.

The second part of this article will focus on the substance of the legislative and management efforts to address the many problems that have cropped up since the Sea’s origination. These efforts began in earnest during the 1960s and subsequently underwent significant changes in scope, ethic, and purpose in the 1990s. Today, changes in legislation guiding management practices continue to occur as the Sea has once again become a topic of intense political debate. In addition to the normal accompaniments of political treatment, these efforts have culminated in large-scale restoration projects that continue to this day.

This article will conclude with some consideration of ongoing problems facing the Sea and potential solutions that should be considered and incorporated into the current restoration efforts. Importantly, the entities involved with those efforts are part of a growing group that is guided by substantially different ethics than those used in past Sea-related decisions. Those entities, the future viability of the Sea’s uses, and several proposals for intelligent resource management decisions going forward combine to create a hopeful foundation for future efforts. The ultimate fate of the Salton Sea, however, remains uncertain.

II. The Origins of the Salton Sea: Anthropocentricity at Work

While often referred to as a manmade lake, the Salton Sea existed in some form or another long before human intervention. The Sea’s existence, however, has always been closely related to the whims of the Colorado

agricultural inflows and natural evaporation, high salt concentrations, recent settlements involving the Sea’s preferred level, and the current efforts by the California Resources Agency to develop a permanent solution to continued environmental degradation in the Sea).

2. Salton Sea Authority, *Recreation*, <http://saltonsea.ca.gov/recreation.html> (last visited Feb. 1, 2014).

River. This connection was never more apparent than the months during which the Sea's current iteration was formed.

A. Of Mistakes and Opportunities

If the Colorado River continues to flow through the channel which it has been occupying during the last six months . . . into what is known as the Salton Sink in southern California . . . the geography of the Southwest must be radically changed.

~Allen Day³

Put simply, the Salton Sea is a grand accident of resource mismanagement. In 1905, an ancient lakebed known then as the Salton Basin was filled inadvertently when a Colorado River levee broke during routine engineering and reconstruction.⁴ The levee's failure resulted in an eighteen-month flood of the lakebed.⁵ That event resulted in the earliest manmade version of the now 360 square-mile waterbody.⁶ After a century of conflicting resource management decisions influenced by the Sea's many stakeholders—with the strongest influence derived from agricultural entities that are heavily dependent on its waters—the Sea and its surroundings are plagued by devastating ecological complications and severe water quality issues.⁷

When the levee initially failed, though, the formation of the Sea was considered somewhat benign. Winter in the Imperial Valley, the Sea's immediate surroundings, was a critical growing season and it usually brought about low flows and resulting siltation problems in irrigation

3. Allen Day, *The Inundation of the Salton Basin by the Colorado River and How It Was Caused*, SCI. AM., Apr. 14, 1906, at 310 (writing on the inception of the Salton Sea).

4. SALTON SEA AUTHORITY, SALTON SEA REVITALIZATION & RESTORATION: SALTON SEA AUTHORITY PLAN FOR MULTI-PURPOSE PROJECT 1 (2006), available at <http://saltonsea.ca.gov/pdfs/ssa-plan-draft-6-19-06-exec-summary.pdf> [hereinafter SSA PLAN EXECUTIVE SUMMARY]; see also Shannon Baker-Branstetter, *The Last Stand of the Wild West: Twenty-First Century Water Wars in Southern California*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10726, 10727 (2008).

5. SSA PLAN EXECUTIVE SUMMARY, *supra* note 4, at 1.

6. *Id.*

7. See generally *id.* at 2 (explaining that the Sea "is about 25% saltier than ocean water. If no remedial actions are taken, the Sea will become so saline within 15 years that the sport fishery and the fish that serve as a food source for birds will be effectively eliminated").

canals.⁸ Thus, the sort of “flushing” promoted by the unusual flood was actually well-received.⁹

As flooding continued, developers and agricultural interests responded with positivity. In fact, commentators believe purposeful obstruction complicated the California Development Commission’s (“CDC”) attempt to secure a \$200,000 loan from the Southern Pacific Railroad (“SPR”) to reconstruct the breached levee.¹⁰ This belief is supported by the fact that SPR had extensive land holdings in the Imperial Valley, and the potential profits from continued flooding were promising in terms of their promotion of agricultural development.¹¹

B. Reactions: Management and Judicial Decisions that Shaped the Sea

[T]he value of this property dependent upon [the Colorado River] exceeded \$10,000,000, and [it] would be rendered worthless without these waters.

~Circuit Judge William W. Morrow¹²

While SPR’s questionable approach to levee repairs bred doubt about its true take on the flooding “disaster,” it ultimately performed the necessary repairs.¹³ However, the CDC was successfully sued by industrial interests within the Salton Sink that suffered from the massive flooding, including the New Liverpool Salt Corporation.¹⁴ New Liverpool was a large salt refining entity, which, subsequent to the flood, brought an action to recover damages for the overflowing of its lands within the inundated zone and

8. WILLIAM DEBUYS, *SALT DREAMS: LAND & WATER IN LOW-DOWN CALIFORNIA* 101 (1999).

9. *Id.*

10. *Id.*

11. *Id.* at 103. For more on the fate of this loan, and the famous role of CDC director E. H. Harriman in attempting to fight back the river against equally strong natural and economic realities, see *generally* PAT LAFLIN, *THE SALTON SEA: CALIFORNIA’S OVERLOOKED TREASURE* 22–26 (1995).

12. *Cal. Dev. Co. v. New Liverpool Salt Co. (The Salton Sea Cases I)*, 172 F. 792, 798 (9th Cir. 1909) (emphasis added) (accompanying Judge Morrow’s opinion allowing continued diversions, but enjoining the use of some negligently constructed waterways, thus effectively ordering the legal continuation of the Salton Sea’s existence), *reh’g denied*, 215 U.S. 603 (1909).

13. *Salton Sea Case Decision Upheld*, *LOS ANGELES HERALD*, Aug. 3, 1909, at 2 (conducting said repairs after approval by President Roosevelt and an appropriations bill diverting two million dollars to a repair fund).

14. *Id.*

sought an injunction restraining the CDC from continued diversion into the Salton Sink.¹⁵

That action and several others were consolidated into *The Salton Sea Cases of 1909*.¹⁶ Relevant to this analysis, and unsurprising given the era, substantially all weight and consideration in the adjudication of *The Salton Sea Cases* was given to property values and potential impacts of forbidding continued diversion of the Colorado River, however harmful it was found to be.¹⁷ In deciding whether to grant the injunction against additional flow diversions, the Ninth Circuit placed heavy emphasis on the property values alleged by the CDC and SPR.¹⁸ Beyond that emphasis, the court considered at great length the CDC's argument that the floods were inevitable. That argument attempted to nullify the prior determinations of the CDC's negligence in constructing the canals, barriers, and levees that gave way and resulted in the massive flooding.¹⁹ Thus, in terms of causation, the CDC and SPR attempted to subordinate their own faults by blaming heavy rains and erratic conditions of the Colorado River from years prior.²⁰ This serves as a fascinating example of an industrial entity downplaying its own anthropocentricity—negligently planned and constructed water diversions which served to reduce costs and maximize profit²¹—and blaming nature, the oft-perceived “demonic other” of the era.²²

While the court lent some credence to the CDC's arguments by acknowledging particularly problematic conditions in previous years, it looked beyond those arguments to the realities of the situation—a devastated economy within the Salton Sink and angry stakeholders seeking retribution.²³ Thus, the court enjoined additional diversions from specific negligently constructed aspects of the CDC's infrastructure.²⁴ Very importantly, however, the court did not completely enjoin diversions into

15. *The Salton Sea Cases I*, 172 F. at 794.

16. *The Salton Sea Cases I*, 172 F. 792.

17. See *id.* at 814–16 (analyzing diversion at length in the context of jurisdiction and determination of fault).

18. *Id.* at 798.

19. See generally DEBUYS, *supra* note 8, at 101–04 (discussing the conflicting stories surrounding the flooding that resulted in the accidental sea).

20. *Id.* at 102 (Charles Rockwood of SPR attributed massive flows into the Sea to a “very unusual season”); but see *The Salton Sea Cases I*, 172 F. at 806, 819 (finding no evidence of that the rains of 1904 contributed to the flooding of the Salton Sink in 1905).

21. *The Salton Sea Cases I*, 172 F. at 806, 810–11.

22. See William Cronon, *Uncommon Ground: Toward Reinventing Nature*, in NATURAL RESOURCES LAW AND POLICY 5 (James Razband et al. eds., 2009).

23. *The Salton Sea Cases I*, 172 F. at 798.

24. *Id.* at 820.

the Salton Sink and affirmatively allowed its filling to continue.²⁵ In fact, when the same companies brought an additional action arguing that the CDC's continued diversions violated the injunction, the court found that those diversions did not substantially injure the companies.²⁶ This odd finding is due in large part to the fact that those complainants' property interests had already been devastated and repaid in accordance with the court's prior order.²⁷ Since the slate had been wiped clean, there was no longer anything to defend, leaving the Salton Basin legally poised to become the Salton Sea as we know it today.

The Salton Sea's inception story, though winding, has tinges of anthropocentricity at most every turn. First, the CDC attempted to harness and redirect the Colorado River to bring comfort and, presumably, profit to newly settled desert land.²⁸ Then, in its haste to mature its agricultural interests, the CDC constructed its diversionary infrastructure in a legally negligent manner.²⁹ After that, when it attempted to right its errors, it was met with pushback by the SPR based on its potential for gain from those errors.³⁰ Finally, when these issues were brought to the Ninth Circuit and the California Supreme Court, a very limited injunction was placed on the continued diversion of the river.³¹ The injunction and fines imposed against the CDC were successful only in rendering that company insolvent,³² but they did not stop the subsequent filling and refilling of the Sea. The Imperial Irrigation District ("IID"), formed in 1911 as a result of the CDC's dissolution, followed both the CDC's physical footsteps and ethical approach—profit over preservation.³³ The continued practice of diversions

25. *Id.* at 799 (describing the conditions of the lower court's decree, which enjoined some aspects of the diversion and awarded damages for injuries resulting therefrom, but allowed other aspects to continue).

26. *Id.* at 820.

27. *New Liverpool Salt co. v. Cal. Dev. Co. (The Salton Sea Cases II)*, 172 F. 820, 823–24 (9th Cir. 1909).

28. See Robert L. Sperry, *When the Imperial Valley Fought for Its Life*, 21 J. OF SAN DIEGO HIST. 24 (1975).

29. *The Salton Sea Cases I*, 172 F. at 819–20 (explaining "[t]he evidence shows conclusively that it was defendant's method of constructing the intakes that resulted in turning the flood . . . into Salton Sink").

30. DEBUYS, *supra* note 8, at 101.

31. *The Salton Sea Cases II*, 172 F. at 821–22.

32. See generally DEBUYS, *supra* note 8, at 121 (describing the various monetary judgments against the CDC in the aftermath of the disaster, which left the CDC little more than a "shell-shocked and hollow entity").

33. See LAFLIN, *supra* note 11, at 29; see also Kim Delfino, *Salton Sea Restoration: Can There Be Salvation for the Sea?*, 19 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 157, 161 (2006)

to support a consistent irrigation source, offered for the agricultural needs that quickly developed within the newly fertile Imperial Valley, fed the same Salton Sea that persists today.³⁴

Without these judicial decisions, which consistently focused on monetary gain, appreciation of property values, and associated costs to the entities largely responsible for the Sea's formation, it is entirely possible the Sea would have been left alone and floodwaters would have eventually evaporated.

III. Clash of Values at the Sea

Although the Sea's continued existence was, effectively, legally condoned in *The Salton Sea Cases* of 1909, it faced much uncertainty in the following decades. Most importantly, fluctuations in the Sea's water level forced legislative action to maintain the resource for the benefit of the IID.³⁵ Congress designated federally owned lands within the Salton Basin as an agricultural drainage depository for U.S. Bureau of Reclamation ("USBR") irrigation projects, rendering the Sea a waste destination for irrigated agricultural lands controlled by IID.³⁶ Additionally, in 1928, Congress passed the Boulder Canyon Project Act, allocating 4.4 million acre feet of water from the Colorado River per year to California, much of which was directed entirely to the IID.³⁷ As will be described below, this injection of water to benefit agricultural entities, and the resulting artificial inflows into the Sea, sustained the Sea, allowed it to flourish as a fishery and, ultimately, become a booming destination for tourism, if only for a time.

(outlining the ecological outcomes of some of IID's more profit-focused ventures, including massive water transfers away from the Sea and limitations on inflows).

34. JEANINE JONES, CALIFORNIA DEP'T OF WATER RESOURCES, MANAGEMENT OF THE SALTON SEA ECOSYSTEM, 3 SW. HYDROLOGY 26 (2004), https://www.swhydro.arizona.edu/swhydro/archive/V3_N4/feature6.pdf.

35. *Id.* at 26–27. The Sea's water-levels reached a record low in the early 1920s. Victor M. Ponce, *The Salton Sea: An Assessment* (2005), available at <http://saltonsea.sdsu.edu/>.

36. Sue McClurg, *The Salton Sea: The Environmental and Economic Values of This Vast Inland Lake Prompt Local Officials to Launch a New Restoration Effort*, W. WATER EDUC. FOUND., March 1994, at 3–6.

37. Boulder Canyon Project Act, Pub. L. No. 70-642, § 4(a), 45 Stat. 1057 (1928).

A. Utilitarianism and the Sea: Glory and Devastation Throughout the Century

What does man seek? Whatever it is, it's here at Salton Sea. Here is all that you and your family, your children, and your children's children will want. Make an investment in a growing and prosperous future. This is the birth of a city . . .

~1964 television advertisement for property in Salton City³⁸

By the 1960s, conditions in the Salton Sea had become ideal for fish proliferation, as salinity levels rose to a point that maintained thriving corvina and tilapia populations.³⁹ At that time, the Sea attracted fishermen from great distances. Anglers in the Sea were catching, on average, 5.3 orangemouth corvina per trip, compared to a 1.6 ratio in the San Joaquin Delta—one of California's most acclaimed fisheries.⁴⁰

With fishing opportunities, as well as a veritable lake in the middle of the desert, came vacationers. Soon, developers transformed the area immediately surrounding the Sea into resorts, vacation homes, and permanent residences.⁴¹ This development, and its dependency on the Sea's water resources, placed a burden on the IID to maintain inflows to preserve the Sea's water levels.⁴² Anthropocentric management, in the form of real estate and recreational development,⁴³ mandated utilitarian use of the resource, in the form of flows allocated specifically to keep the Sea's water levels at a usable height. Although this prevented water levels from falling, freak conditions in the early 1970s actually caused the opposite to occur.

Unusually high levels of runoff from two consecutive tropical storms in 1976 and 1977, as well as increased agricultural drainage and wastewater inflows to the Sea from surrounding developments and Mexico, caused

38. KOEDARTS, *PLAGUES & PLEASURES ON THE SALTON SEA*, YouTube (2006), <https://www.youtube.com/watch?v=8TjGAWxL23c>.

39. McClurg, *supra* note 36, at 6.

40. *Id.*

41. SSA PLAN EXECUTIVE SUMMARY, *supra* note 4, at ES-1 to 2.

42. Michael J. Cohen, *Past and Future of the Salton Sea* 132–33, in *THE WORLDS WATER 2008–2009* (2009) (discussing development dependency on inflows both in a historical context but also with regards to future restoration plans, and urging said plans to account for the perverse incentive of management and allocation of inflows specifically to benefit local resorts and residential development).

43. See KOEDARTS, *supra* note 38. Longtime residents of Salton City report that, at one point in the 1960s, there were eight docks launching hundreds of fishing vessels per day.

widespread economic damage.⁴⁴ The use of the resource for some utilitarian purposes led to the downfall of other uses. Soon farmland was inundated, shoreline and resort development was washed out, and many of the recreational values for which the Sea's new features were initially intended were reduced to ruins.⁴⁵

B. Deep Ecology and Stewardship: Birds, Fish, and the National Wildlife Refuge

Eden exists at California's largest lake in the vistas as one stands upon its shores and gazes at snow-capped mountains. In the brilliant sunsets that reflect gold in the feathers of majestic pelicans, in the guttural cry of the snowy egret as the sun lowers into the horizon. Eden exists in the spirit of those people that use, enjoy and depend upon the Salton Sea for their state of mind; their state of soul.

~Steve Horvitz⁴⁶

Primarily due to the gradual development and disappearance of wetland resources in Southern California and the Mexican Delta, the Salton Sea slowly became a habitat for hundreds of migratory bird species.⁴⁷ Indeed, the Sea itself acts as a critical stop on the Pacific Flyway.⁴⁸ By one commentator's account, 400 species of birds have been recorded at the Sea.⁴⁹ Additionally, the Sea supports eighty percent of the Western American white pelican population, over ninety percent of North America's eared grebes population, forty percent of North America's endangered Yuma

44. McClurg, *supra* note 36, at 4; Nathan Myers, *Strange Birds Fly South*, L.A. TIMES, October 15, 2006, available at <http://articles.latimes.com/2006/oct/15/magazine/tm-saltonsea42>.

45. McClurg, *supra* note 36, at 4.

46. Steve Horvitz, *A Bit of Eden*, SAN DIEGO STATE UNIV., BASIN-DELTA MOTHERSITE, <http://www.sci.sdsu.edu/salton/ABitOfEden.html> (last visited Apr. 1, 2014). Mr. Horvitz was Superintendent of the Salton Sea State Recreation Area.

47. U.S. FISH & WILDLIFE SERV., THE SONNY BONO SALTON SEA NATIONAL WILDLIFE REFUGE COMPLEX, FINAL COMPREHENSIVE CONSERVATION PLAN, 1-16 (2014), available at <http://www.fws.gov/uploadedFiles/Volume%201%20Final.pdf> [hereinafter SSNWR PLAN].

48. See Delfino, *supra* note 33, at 159. The Pacific Flyway is a major north-south flyway, or flight path, for migratory birds in America. See CAL. DEP'T OF PARKS AND RECREATION, FOLLOW THE PACIFIC FLYWAY IN CALIFORNIA STATE PARKS, available at <http://www.parks.ca.gov/pages/24317/files/followthepacificflyway.pdf>.

49. *Id.*

clapper rail population, and fifty percent of the world's Mountain plover population.⁵⁰

As an amazing snapshot of species adaptation, many of the Sea's migratory waterfowl changed their habits and food sources since originally relocating to the Sea.⁵¹ Initially, agricultural water diversions from the Colorado River created marshes around both the diversion channels as well as the Sea itself.⁵² The waterfowl that lived in the Colorado River Delta were displaced by its continued drying and relocated in the newly formed marshes. The continued expansion of the Sea, though, forced the waterfowl to leave the new marshes and use the increasingly lush surrounding croplands for food and shelter.⁵³

The importance of the Sea was acknowledged early on, when, by Presidential Proclamation in 1930, the Salton Sea National Wildlife Refuge ("SSNWR") was established.⁵⁴ At the time, the Refuge consisted of 35,000 acres of protected lands, most of which fell along the Pacific Flyway.⁵⁵ However, due to a slew of variables and the flooding mentioned above,⁵⁶ only 2200 manageable acres remain—creating a classic scale problem, as the SSNWR encompasses only a negligible portion of the area surrounding the Sea.⁵⁷

Interestingly, the creation of the sanctuary solidified broad protection for the Sea's several noneconomic ecosystem services,⁵⁸ primarily its use as wetlands and migratory bird habitat.⁵⁹ Because economic interests would have had no need to protect these noneconomic services, the national wildlife refuge designation may very well have protected these services from the Imperial Valley's massive economic and agricultural expansion. Additionally, the establishment of the SSNWR is seemingly the only major decision regarding the Sea's resources that was motivated primarily—if not purely—by biocentric ethics. The broad support for maintenance and

50. *Id.*

51. SSNWR PLAN, *supra* note 47, at 3-39 to 3-40.

52. *Id.* at 3-8.

53. *See id.* at 4-4.

54. U.S. FISH & WILDLIFE SERV., SONNY BONO SALTON SEA NATIONAL WILDLIFE REFUGE WILDLIFE 3 (2008), *available at* <http://www.fws.gov/saltonsea/pdf/SaltonSeaWildlifeList'08.6.pdf>.

55. *Id.*

56. *See supra* Part III.A.

57. U.S. FISH & WILDLIFE SERV., SAVING THE SALTON SEA 5 (1997), *available at* <http://www.usgs.gov/saltonsea/docs/history/Research%20Needs%20Assesment.pdf>.

58. As opposed to its purely economic ecosystem services, such as its use as a runoff sink, a wastewater repository, and an irrigation water source.

59. SSNWR PLAN, *supra* note 47, at 1-19.

preservation of wildlife habitat that resulted in the refuge designation stands in stark contrast to the other resource management approaches that shaped the Sea and its surroundings.⁶⁰ The SSNWR was later renamed the Sonny Bono Salton Sea National Wildlife Refuge, after Sonny Bono, a former California congressman and a major proponent of the refuge and restoration of the Sea.⁶¹

IV. Enter Salton Sea Authority: Solving Conflict of Values

In response to fluctuating water levels, depreciating property values, and increasingly problematic environmental conditions in the area surrounding the Salton Sea, the IID, the Coachella Valley Water District, and both Imperial and Riverside County banded to form the Salton Sea Authority ("SSA") in 1993.⁶² This "coalition" of local interested entities was the first example of an effort to address the institutional inadequacy that plagued the Sea.

To this day, the SSA works with state and federal government entities to develop plans to stabilize water elevation, enhance recreational and economic development potential around the Sea, and to improve water quality.⁶³ The SSA's structure and purpose, therefore, reflects a hybrid anthropo- and biocentric approach to resource management, bringing actors to the table from all sides of the issue—an approach that reflects the Quincy Library Group, well-known for its collaborative negotiations and management of National Forests.⁶⁴ This multifaceted approach has proven

60. DAVID CARLE, INTRODUCTION TO WATER IN CALIFORNIA 153–54 (P. Faber & B. Pavlik eds., 2004) (explaining that the Salton Sea, once filled, acted as a replacement for much of Southern California's coastal wetland habitat, which was largely developed or altered over the course of the twentieth century).

61. Salton Sea Reclamation Act of 1998, H.R. 3267, 105th Cong. § 103(a) (1998). For more information on the Sonny Bono Salton Sea National Wildlife Refuge, see U.S. Fish & Wildlife Service, Sonny Bono Salton Sea, http://www.fws.gov/refuge/Sonny_Bono_Salton_Sea/ (last updated Dec. 16, 2013).

62. *The "Sonny Bono Memorial Salton Sea Reclamation Act": Hearing on H.R. 3267—Hearing Before the Subcomm. On Water and Power, 105th Cong. 77 (1998)* (statement of Tellis Codekas, President of the Salton Sea Authority).

63. SSNWR PLAN, *supra* note 47, at 4-52; SALTON SEA AUTHORITY, SALTON SEA RESTORATION FINAL PREFERRED PROJECT REPORT: EXECUTIVE SUMMARY ES-10 tbl. ES-2 (2004), available at ftp://81.31.161.210/Jalilvand/SoilErosion/Nevada-walker%20lake/ppr_summary.pdf.

64. See generally Charles Davis & M. Dawn King, *The Quincy Library Group and Collaborative Planning within U.S. National Forests* (1999) (documenting the collaborative process that culminated in The Herger-Feinstein Quincy Library Group Forest Recovery Act).

effective in galvanizing parties interested in the Sea's varying resources.⁶⁵ Additionally, it has resulted in legislative and legal action to guide future allocation of the Sea's resources and, conversely, allocation of resources to benefit the Sea itself.

A. Cooperation, Legislation, and Restoration

If we don't move within a year or two, it will be too late.

~Sonny Bono⁶⁶

Shortly after its formation, the SSA carried out an effort, under the Salton Sea Restoration Act ("SSRA"), to obtain as much information on the Salton Sea as possible.⁶⁷ Along with the USBR and the California Department of Water Resources ("CDWR"), the SSA collected weather data, water current models, underwater topography information, and developed methods of potential dike construction to alleviate some of the Sea's flooding issues.⁶⁸

If the designation of the SSNWR was an example of deep ecology—environmental advocacy focused on inherent ecological worth rather than utility⁶⁹—then the SSRA is a clear example of Aldo Leopold's land ethic in practice.⁷⁰ As established in its objectives, the Act was intended to: (1) reduce and stabilize the overall salinity of the Salton Sea; (2) stabilize the surface elevation of the Salton Sea; (3) restore wildlife habitat and reclaim water quality; (4) enhance the potential for recreational uses and economic development; and (5) ensure the continued use for the Salton Sea as a

65. See, e.g., Antoine Abou-Diwan, *Local Officials React To The News of Interior Secretary Salazar's Resignation*, IMPERIAL VALLEY PRESS, Jan. 19, 2013, available at http://articles.ivpressonline.com/2013-01-19/roger-shintaku_36437094 (discussing past involvement of U.S. Department of the Interior in the SSA and documenting support from state congressional representatives and state and municipal officials).

66. See *Hearing on H.R. 3267*, *supra* note 61 (as quoted by California Senator Barbara Boxer in a 1998 congressional hearing on a Salton Sea reclamation bill).

67. U.S. DEP'T OF INTERIOR, BUREAU OF RECLAMATION, LOWER REGIONAL REGION, *Salton Sea*, <http://www.usbr.gov/lc/region/programs/saltonsea.html> (last visited Feb. 18, 2015); Salton Sea Restoration Act, 2003 Cal. Stat. ch. 611–13 (codified at Cal. Fish & Game Code § 2930).

68. *Id.*

69. DAVID R. KELLER, *DEEP ECOLOGY, ENCYCLOPEDIA OF ENVIRONMENTAL ETHICS AND PHILOSOPHY* 206 (2d. ed. 2008).

70. Cronon, *supra* note 22, at 6–7.

reservoir for irrigation.⁷¹ As enacted, the SSRA required a three-step approach to carry out these objectives. In relevant part, the Act required a study of the feasibility of various alternatives for remediating the Salton Sea, which was to take place over the course of several years.⁷² This mandate forced funding allocations for the required research efforts, which were conducted by soil and water scientists, economists, and restoration and conservation experts.⁷³ In furtherance of the feasibility study, the SSRA required the Secretary of the Interior to select practicable and cost-effective options for remediating the Salton Sea and to develop a remediation plan to implement the options in accordance with the SSA and the Governor of California.⁷⁴ Although the SSRA served to pave the initial path, the road to restoration has not been smooth.

The SSA eventually made some progress after years of information gathering. First, the Department of Interior (“DOI”) and the other coalition members updated stakeholders in 2003 on the concerted effort in an extensive status report.⁷⁵ This public disclosure served both to inform of progress and to make interested parties aware that something was being done to remediate the Sea’s ills, even though remediation was occurring at a relatively gradual pace.⁷⁶ In total, the status report presented fourteen alternative measures to control the rising salinity and elevation of the Sea and to address other problems, including high nutrient levels.⁷⁷

Later that year, and partially as a response to the status report, California passed landmark legislation—Senate Bill 277—that placed the responsibility of ecosystem restoration on the State of California.⁷⁸ The

71. Salton Sea Reclamation Act of 1998, Pub. L. No. 105-372, 112 Stat. 3377, 3378 (1998).

72. *Id.*

73. *Id.* at 3380.

74. *Id.* at 3378.

75. U.S. DEP’T OF INTERIOR, BUREAU OF RECLAMATION, SALTON SEA STUDY: STATUS REPORT (2003), available at http://www.usbr.gov/lc/region/saltsea/pdf_files/statusrpt.pdf [hereinafter SALTON SEA STUDY: STATUS REPORT].

76. See generally *id.* at 11 (discussing options to address the rising salinity of the Sea, options to engineer diking facilities to act as receptors for salinity inputs, and options to pump the Sea completely dry—all of which were perceived to require more than one decade for implementation).

77. *Id.* at 1.

78. Salton Sea Restoration Act, *supra* note 67 (codified as amended at CA Fish & Game Code § 2931 (2003)); *The Salton Sea Restoration Act of 1998: Hearing on S.B. 277 Before the Assembly Comm. On Water, Parks and Wildlife*, 108th Cong. 4–6 (Sep. 5, 2003) (stating that it is the intent of the Legislature that the State of California undertake the restoration of the Salton Sea ecosystem).

legislation required the CDWR to prepare two integral items: (1) an ecosystem restoration study; and (2) a very nebulous programmatic environmental document.⁷⁹ In effect, these requirements corrected market failures. Where agricultural interests—both at the Sea’s beginning and throughout the following century—saw it fall into a state of disrepair, the public, by way of the state legislature, appointed the CDWR to improve the Sea’s condition.

While the Salton Sea’s issues primarily fall into the realm of natural resources management, some conditions at the Sea create a hybrid natural resources and pollution control concern. To address those concerns, S.B. 277 not only appointed CDWR as the managing agency, it also acknowledged and acted to codify solutions to air pollution control problems that were brought to public attention by the 2003 status report.⁸⁰ Specifically, the action agencies noted that the Sea itself potentially posed significant risk of air quality impacts from sediment erosion.⁸¹ These risks primarily derive from health effects associated with hyper-saline dust blown from the drying and dried parts of the lakebed.⁸² The drying is due to lessening inflows to the Sea caused by Colorado River reallocation,⁸³ yet another complication to the Sea’s management. The Quantification Settlement Agreement (“QSA”), negotiated by several groups to ensure that California does not exceed its annual 4.4 million acre feet allocation of Colorado River water, attempts to address that complication and the continued existence of the Sea.⁸⁴ The collaborative focus of the QSA is on best management practices and increased inflows to the Sea for different purposes—the maintenance of the Sea for human health, wildlife habitat, and potential restoration—than prior flow increases.

79. CA Fish & Game Code §§ 2931(b), (c) (2003).

80. Salton Sea Restoration Act, *supra* note 67 (codified as amended at CA Fish & Game Code § 2931(c)(2) (2003)).

81. SALTON SEA STUDY: STATUS REPORT, *supra* note 75, at 16.

82. See Delfino, *supra* note 33, at 161.

83. *Id.* at 161–62.

84. See *Quantification Settlement Agreement*, SAN DIEGO COUNTY WATER AUTHORITY, <http://www.sdcwa.org/quantification-settlement-agreement> (last visited Mar. 1, 2015).

B. Maintaining the Resource Through Agreements: Foundation for a Solution

Ultimately, I do believe they know the Salton Sea is a critical issue . . . [i]t's going to have an impact on all of us. We can't allow that conversation to dwindle.

~Congressman Manuel Perez⁸⁵

The SSA and the SSRA have historically focused almost entirely on restoration. Restoration, though, is a question of perspective. Should the Sea be allowed to return to its “natural” state? That is, should the Sea be restored to a dry lakebed, free from irrigation runoff inflows and the accompanying recreational and biological conditions that runoff promotes? Regardless of the answer to this question, efforts to “restore” the Sea have trended toward preserving aspects of it from the early twentieth century onwards. In furtherance of that general trend, and to ensure continued inflow, the State of California, the DOI, and several other entities signed the QSA.⁸⁶

The QSA was drafted in an effort to guard against the gradual lessening of California's allotment of water from the Colorado River.⁸⁷ Broadly, the QSA served to promote continued mitigation and restoration efforts regarding the Sea by requiring funding plans and preferred alternatives, even as water allocations from the Colorado River dwindled.⁸⁸ It decreased California's total allocation of Colorado River water, yet spurred fresh water transfers from the IID and San Diego County Water Authority (“SDCWA”) for the specific purpose of maintaining the Sea's water level, and it required only that the allocated water be paid for at cost.⁸⁹ The primary effect of the lowered allocation, on both IID and other Imperial Valley agricultural entities, was massive fallowing throughout the valley.⁹⁰

85. Erica Felci, *Salton Sea Takes Back Seat on Local Campaign Train*, THE DESERT SUN, Mar. 30, 2014. Congressman Perez was arguing to prioritize the Sea's restoration.

86. SAN DIEGO COUNTY WATER AUTHORITY, QUANTIFICATION SETTLEMENT AGREEMENT FOR THE COLORADO RIVER I (2014), available at <http://www.sdcwa.org/sites/default/files/qs-a-fs.pdf>.

87. See *Assembly Hearing on S.B. 277*, *supra* note 78, at 4–6.

88. *Quantification Settlement Agreement*, *supra* note 84, at 1.

89. *Assembly Hearing on S.B. 277*, *supra* note 78, at 3, 5.

90. IMPERIAL IRRIGATION DISTRICT, QUANTIFICATION SETTLEMENT AGREEMENT STATUS REPORT 5 (2012), available at http://www.ibwc.gov/Files/CF_CR_Quant_Settlment_Status_061312.pdf (highlighting water conservation in the Imperial Valley of over 700,000 acre feet due to “fallowing for QSA purposes”); see also *supra* note 37 and accompanying text. The Boulder Canyon Project Act lessened California's total allotment from the Colorado River to 4.4 million acre feet per year. With that limitation came significant strain on agricultural entities to change their practices.

However, that fallowing lessens “necessary” inflows to the Sea, and is perceived by the IID to be a root cause of decreasing water levels, exposure of dry lakebed, exacerbation of air quality issues, and increasing saline concentration.⁹¹ In this Kafkaesque twist of fate, therefore, the same inflows responsible for the Sea becoming an ultra-saline, flood-prone hazard are now considered necessary to prevent further devastation of the Sea and its surroundings.⁹²

Although the QSA was a promising short-term solution and a tangible response to collaboration-fueled legislation, it was challenged and temporarily invalidated by a 2010 state court ruling.⁹³ In yet another series of consolidated Salton Sea cases, a California Superior Court judge found it unconstitutional that the “State itself was purporting to unconditionally commit to pick up the entire tab for mitigation costs” related to the Sea.⁹⁴ Thus, the major legislative effort to address the Sea’s increasing issues through financial payments from the State of California was rendered, at that time, a nonstarter.

Despite the Superior Court’s judgment, the QSA persevered. Upon appeal by stakeholders, the California Court of Appeals found errors with the lower court’s treatment of the case and determined that the QSA’s charge did not violate any appropriations requirements or obligate the state to pay excess costs towards resource mitigation.⁹⁵ From 2011 to the present, the QSA’s lowered allocation mandate persists along with its perceived acceleration of the Sea’s declining water levels, but the foundation for restoration acknowledged in the QSA is nonetheless set for continued mitigation and restoration of the storied Sea.

91. See generally IMPERIAL IRRIGATION DISTRICT, A TIPPING POINT: IMPACT OF STATE WATER TRANSFER ON SALTON SEA (2013), available at <http://www.iid.com/Modules/ShowDocument.aspx?documentid=8595> (explaining that “[a]s the Sea dries up, it will expose more than 50,000 acres of lakebed made up of fine-grain soil particles that contain farm-field sediments, including salts, fertilizers and pesticides,” which, when subject to Southern Californian winds, will pose a significant risk to public health).

92. See Michael J. Cohen & Karen H. Hyun, *Hazard*, PAC. INST. 1 (2006), available at <http://www.pacinst.org/wp-content/uploads/sites/21/2013/02/report15.pdf>.

93. QSA Coordinated Special Proceeding, No. JC 4353 (Cal. Super. Ct. Sacramento Dec. 10, 2009).

94. *Id.*

95. *In re Quantification Settlement Agreement Cases*, 134 Cal. Rptr. 3d 274, 306 (Cal. Ct. App. 2011).

V. Keys to a Solution: Finding Funding for the Myriad Proposals

The massive movement over the past few decades to restore and manage the Sea has certainly gained political momentum, as evinced by the coalitions formed in the 1990s and the legislation and agreements geared towards efficient management from the early 2000s. However, without funding for the solutions proposed by the action agencies—including one serious proposal requiring a whopping nine billion dollar expenditure⁹⁶—this momentum will falter and the Sea's fate will continue to remain uncertain.

Two primary ventures should be taken by the SSA, the CDWR, the IID, the SDCWA, and the federal government to ensure funding for the Sea's recovery and sustainable management of the resource so the same ills do not persist even after implementation. First, the state and federal government, local municipalities, and private landowners—including agricultural entities—should market the mineral-rich and inexpensive desert land surrounding the Sea to large-scale industrial interests in manufacturing and mineral harvesting. Second, and more pressing, the public lands near the Sea that do not serve as significant or sensitive wildlife habitat should be deemed by the federal government to be priority siting locations for renewable energy development. The potential funding streams derived from these efforts can be employed to counteract the Sea's continued degradation and implement the restoration projects already identified. The SSA and its coalition partners can then pursue realistic, practicable, and implementable engineering efforts to address the Sea's various maladies.

These suggestions are geared not only towards revenue generation but also towards reconciling value conflicts at the Sea. Ideally, they would result in backing for sound economic and environmental management decisions that both preserve and maintain habitat—in support of the Sea's more biocentrally inclined stakeholders—and generate funding for the Sea and its surrounding areas—to benefit those with anthropocentric leanings.

A. Development of the Area's Inexpensive Land for Large-scale Manufacturing

Due to the Sea's relatively neglected economic characteristics, its surrounding real estate is inexpensive relative to other Southern California areas.⁹⁷ That fact, combined with the abundance of minerals concentrated

96. Legislative Analyst's Office, *Restoring the Salton Sea* (2008), available at http://www.lao.ca.gov/2008/rsrc/salton_sea/salton_sea_01-24-08.aspx.

97. David Streitfeld, *Salton City: A land of dreams and dead fish*, L.A. TIMES, July 01, 2007, available at <http://articles.latimes.com/2007/jul/01/business/fi-salton1>.

in the Sea's brine, could serve to attract development opportunities from manufacturers interested in construction near raw materials sources.

Already in operation near the Salton Sea is a mineral extraction plant that uses geothermal power to derive lithium from the Sea's mineral-rich brine.⁹⁸ Estimates of the operation's maximum capability place its total extraction at upwards of 16,000 tons of lithium per year.⁹⁹ The importance of all of this lithium is its potential use in lithium-ion batteries for purely electric cars, such as the popular brand Tesla—which recently sited a “gigafactory” in Nevada to produce its lithium-ion batteries.¹⁰⁰

The SSA and other economic interests in Imperial County should attempt to partner to make the possibility of geothermal development, lithium extraction, or other similar economic development into a reality. Within the extent of their authority and the mandate to generate revenue for the Sea's restoration, the coalition entities should use available tools to attract development, jobs, and attention to the uses of the Sea—aside from traditional agriculture harvest and habitat preservation. Such large-scale development would likely publicly highlight the necessity of the Sea and the importance of the Imperial Valley's role in California's future.

B. Prioritizing Public Lands Near the Sea for Renewable Energy Development

Although not entirely novel to this analysis, siting renewable energy projects on public lands near the Sea would not only be a politically intelligent solution, but would also serve as a significant source of economic benefit to the Sea and its surroundings.¹⁰¹ As of the date of publication, several California departments and federal agencies are working on a Desert Renewable Energy Conservation Plan, where certain desert locales are selected as prime siting locations for clean-energy development projects.¹⁰²

98. Gina Germani, *A Symbol of Innovative Energy*, ABUNDANT OPPORTUNITIES, Mar. 2012, at 22.

99. *Id.* at 23.

100. Mike Ramsey, *Does Tesla Really Need a \$5 Billion Battery?*, WALL ST. J., Apr. 1, 2014, available at <http://online.wsj.com/news/articles/SB10001424052702304157204579473304005412522>.

101. CAL. DEP'T OF FISH AND GAME, CAL. ENERGY COMM'N, U.S. BUREAU OF LAND MGMT., AND U.S. FISH AND WILDLIFE SERV., PLANNING AGREEMENT FOR THE DESERT RENEWABLE ENERGY CONSERVATION PLAN 5 (2010), available at <http://www.energy.ca.gov/2009publications/REAT-1000-2009-034/REAT-1000-2009034-F.PDF>.

102. FREQUENTLY ASKED QUESTIONS, DESERT RENEWABLE ENERGY PLAN, <http://www.drecp.org/whatisdrecp/faq.html>.

Many of the lands surrounding the Sea are publicly owned and operated by the DOI, and would thus be prime siting lands.¹⁰³

California state senators brought this issue to national attention by openly encouraging the DOI to consider the Salton Sea a national priority in the siting of renewable energy projects.¹⁰⁴ The political relevance and creativity of this solution addresses the complexity of the Sea's problems. Stakeholders at the Sea, primarily backed by IID funding, have already identified over 2000 possible megawatts of untapped geothermal energy near the lakebed itself.¹⁰⁵ Funding derived from potential geothermal projects could be redirected, in part, to support restoration efforts outlined in the SSRA and subsequent proposals.

If these sustainable energy and other funding streams become available, then generated revenues can be put towards shoreline habitat protection, exposed saline dust mitigation, engineering of wetlands replacement ponds and the other restoration efforts identified in the SSA's proposed solutions.

VI. Conclusion

The Salton Sea's history is equally fascinating and tragic. Resource mismanagement has generated continuous ecological and utilitarian failures and the myriad proposed solutions to the Salton Sea's complications require funding that does not exist in any current budget. Thus, the continued introduction of water allocation- and appropriation-dependent solutions is an exercise in futility. Solutions to the Sea's problems should instead focus on the creation of steady funding streams which may be redirected towards the mitigation and remediation measures introduced by the SSRA, acknowledged by the QSA, and pivotal for the Sea's future.

Workable solutions to the Sea's copious issues are complicated. However, restoration can be realized if funding is generated through proper management, so long as that management abides by ethics that account for all of the Sea's resources. If management returns to balance, then the accidental Sea, its wildlife inhabitants, and its human denizens will not be left to history.

103. Letter from United States Senator Barbara Boxer, Congressman Raul Ruiz, and Congressman Juan Vargas to Sally Jewell, Secretary of the U.S. Dep't of Interior (Feb. 27, 2014), *available at* <https://www.boxer.senate.gov/press/release/boxer-ruiz-vargas-urge-secretary-of-interior-jewell-to-designate-saltonsea-lands-as-a-renewable-energy-area/>.

104. *Id.*

105. Ian Crawford, *From the Salton Sea to Sacramento – On the Trail of a Geothermal Gold Rush in California*, INSIDE GEOTHERMAL 17 (2014), *available at* <http://www.geothermal.org/PDFs/Articles/14MayJune.pdf>.